

CLAIMS

1. A valve assembly to be endovascularly implanted within a body channel, comprising:
 - an anchoring structure;
 - a collapsible valve connected to the anchoring structure, wherein the collapsible valve is configured to permit fluid to flow in a first direction and prevent fluid to flow in a second direction;
 - an outer circumferential reservoir positioned at an outermost radius of the anchoring structure when the anchoring structure is at an expanded state; and
 - a sealable fixation compound housed within the reservoir.
2. The valve assembly of claim 1, wherein said valve is positioned internally to said anchoring structure.
3. The valve assembly of claim 2, wherein said valve comprises an inflow annulus, an outflow annulus, and a plurality of leaflets.
4. The valve assembly of claim 3, wherein said inflow annulus is scalloped.
5. The valve assembly of claim 1, wherein the anchoring structure is collapsible and expandable to fill the body channel.
6. The valve assembly of claim 5, wherein multiple reservoirs are attached to the anchoring structure.
7. The valve assembly of claim 6, wherein the reservoir has two concentric compartments.
8. The valve assembly of claim 1, wherein the sealable fixation compound comprises a two component biological adhesive that is activated by mixing the two components.

9. The valve assembly of claim 8, wherein the two components are housed in separate reservoirs.

10. The valve assembly of claim 1, wherein the sealable fixation compound is a temperature sensitive adhesive that is activated by heat.

11. The valve assembly of claim 1, wherein the sealable fixation compound comprises a plurality of microparticles that is activated by water.

12. The valve assembly of claim 1, wherein the sealable fixation compound is activated by blood.

13. The valve assembly of claim 1, wherein said anchoring structure is inflated by a balloon catheter to the expanded state from the collapsed state.

14. The valve assembly of claim 1, wherein said anchoring structure is self expanding.

15. The valve assembly of claim 1, wherein the reservoir excretes the sealable fixation compound when the support structure is fully expanded.

16. The valve assembly of claim 1, wherein the reservoir is made of a material that ruptures from the pressure exerted by the expanded anchoring structure when expanded to an appropriate diameter.

17. The valve assembly of claim 1, wherein the reservoir is made of a material that erodes upon contact with body fluids.

18. The valve assembly of claim 1, wherein endovascular implantation through a body channel is carried out by coupling the anchoring structure to a catheter.

19. The valve assembly of claim 1, wherein the collapsible valve is a biological valve.

20. The valve assembly of claim 1, wherein the collapsible valve is a nonbiological valve.
21. The valve assembly of claim 1, wherein the collapsible valve comprises three valve leaflets.
22. The valve assembly of claim 1, wherein the collapsible valve comprises two valve leaflets.
23. A method of endovascularly implanting a collapsible valve assembly within a body channel, comprising the steps of:
 - providing a collapsible valve connected to an anchoring structure, the collapsible valve and anchoring structure being expandable to fill the body channel, the collapsible valve being further configured to permit fluid to flow in a first direction and prevent fluid to flow in a second direction, the anchoring structure having an outer circumferential reservoir located at an outermost radius of the anchoring structure when the anchoring structure is at an expanded state, wherein the reservoir contains a sealable fixation compound for securely fixing the valve assembly at a desired body channel location;
 - passing the collapsible valve assembly to the desired body channel location;
 - excreting the sealable fixation compound from the reservoir when the anchoring structure is at an expanded state; and
 - sealing the anchoring structure onto a tissue at the desired body channel location by activating the sealable fixation compound.
24. The method of claim 23, wherein said valve assembly comprises a replacement valve and anchoring structure.

25. The method of claim 24, wherein said valve is positioned internally to said anchoring structure.

26. The method of claim 25, wherein said valve comprises an inflow annulus, an outflow annulus, and a plurality of leaflets.

27. The method of claim 26, wherein said inflow annulus is scalloped.

28. The method of claim 23, wherein the anchoring structure is collapsible and expandable to fill the body channel.

29. The method of claim 23, wherein multiple reservoirs are attached to the anchoring structure.

30. The method of claim 23, wherein the sealable fixation compound comprises a two component biological adhesive that is activated by mixing the two components.

31. The method of claim 30, wherein the two component biological adhesives are housed in separate reservoirs.

32. The method of claim 31, wherein the reservoir is comprised of two concentric compartments.

33. The method of claim 23, wherein the sealable fixation compound is a temperature sensitive adhesive that is activated by heat.

34. The method of claim 23, wherein the sealable fixation compound comprises a plurality of microparticles activated by water.

35. The method of claim 23, wherein the sealable fixation compound is activated by blood.

36. The method of claim 23, wherein the anchoring structure is inflated by a balloon catheter to the expanded state from the collapsed state.

37. The method of claim 23, wherein the anchoring structure is self expanding.
38. The method of claim 23, wherein the reservoir excretes the sealable fixation compound when the anchoring structure is fully expanded.
39. The method of claim 23, wherein the reservoir is made of a material that ruptures from the pressure exerted by the expanded anchoring structure when expanded to an appropriate diameter.
40. The method of claim 23, wherein the reservoir is made of a material that erodes upon contact with body fluids.
41. The method of claim 23, wherein endovascular implantation through the body channel is carried out by coupling the anchoring structure to a catheter.
42. The method of claim 23, wherein the collapsible valve is a biological valve.
43. The method of claim 23, wherein the collapsible valve is a nonbiological valve.
44. The method of claim 23, wherein the collapsible valve comprises three valve leaflets.
45. The method of claim 23, wherein the collapsible valve comprises two valve leaflets.